



Annual Report 2003

including plans for 2004

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The Royal Veterinary and Agricultural University, Denmark
March 2004

Head of School Stig Milan Thamsborg 2001-2003
 Henning Høgh Jensen 2004-

List of abbreviations

DARCOF	Danish Research Center for Organic Farming (FØJO)
DIAS	The Danish Institute of Agricultural Sciences
DMU	Danmarks MiljøUndersøgelser (National Environmental Research Institute)
DTU	Technical University of Denmark
DVI	The Danish Veterinary Institute
FUR	Forsker Uddannelses Rådet (Danish Research Training Council)
FØI	Danish Research Institute of Food Economics
FØJO	Forskningscenter for Økologisk Jordbrug (Danish Research Center for Organic Farming, DARCOF)
ISOFAR	International Society of Organic Agricultural Research
IVM	Department of Veterinary Microbiology (KVL)
KVL	The Royal Veterinary and Agricultural University
NERI	National Environmental Research Institute
NOVA	The Nordic Forestry, Veterinary and Agricultural University
NorFA	Nordic Academy for Advanced Study
RAN	Research School in Animal Nutrition and Physiology
RAPH	Research School for Animal Production and Health
RUC	Roskilde University Center
SAB	Scientific School in Animal Breeding
SOAR	The Research School for Organic Agriculture and Food Systems

Introducing SOAR

The Research School for Organic Agriculture and Food Systems (SOAR) is located at The Royal Veterinary and Agricultural University (KVL) in Copenhagen and at present (end of 2003), 26 PhD students are enrolled. SOAR was founded in June 2001 with funding from KVL, the Danish Research Centre for Organic Farming (DARCOF) and the Danish Research Training Council (FUR). The summer schools have received separate financial support from the NOVA University, an Inter-Nordic collaboration (www.nova-university.org), and from the Nordic Academy for Advanced Study (NorFA, www.norfa.no).

The major goals of SOAR are

- to improve the quality of the PhD education
- to raise the scientific level of research within areas relevant to organic agriculture by training the PhD students to deal with complex problems, and
- to create an attractive research environment for the PhD students in SOAR

This research school covering organic agriculture and food systems has a very broad scope encompassing technical sciences, natural sciences as well as social sciences. The PhD projects range from e.g. "Technology for reduction of environmental impact and loss of nitrogen from livestock manure" to "Investigating consumer demands on organic food products". Although the majority of the PhD students are attached to KVL, PhD students work and study at different research centers and universities in Denmark, in total 9 different research institutions and 4 different universities. What all PhD students have in common is that they are concerned with issues related to organic production and sales. In SOAR they get the opportunity – together with their supervisors – to discuss and develop research in this multi- and interdisciplinary field of research. Owing to the geographical spread and broad scope of the research topics studied it is seen as essential to support networking among the PhD students by conducting biannual seminars. Furthermore, the yearly summer school aims at broad but important themes like linking organic farming with ecology; research methodologies; values and ideology in science, and other philosophy of science-related topics. Specific research topics for

a reduced number of students are planned to be covered by ad hoc courses. The first was conducted in January 2004.

SOAR provides a forum for all PhD students and their supervisors for a continued discussion of goals, means and methods in relation to research in organic agriculture and food systems. Organic agriculture is based on a range of principles and rules, which should be subject of an ongoing scientific debate to which we as researchers can contribute. This debate is ongoing, and was one of the themes at the Autumn Seminar 2003.

Through international relations SOAR can support the PhD students in their international co-operation and networking. This will in turn strengthen the international research environment at the research institutions and universities. In 2003 SOAR received funding from the Danish Research Training Council for 2 PhD students from abroad to do their PhD in Denmark. There will be a strong focus on internationalization in DARCOF and SOAR in the coming years.

Although located at KVL SOAR has continued strong links to other universities and DARCOF. SOAR is established on a 5 years' trial basis ending in June 2006.

received a FUR grant for a second international PhD student, who commences her studies in 2004.

Biannual seminars

SOAR conducts two yearly seminars for networking, lectures, complementary training and group-discussions on subjects relevant to the PhD study. The seminars are planned by SOAR secretariat in collaboration with the PhD students. At each seminar time is allocated for group discussion on progress and networking. Each seminar also focuses on a theme decided by the PhD students. The venue is different every time, visiting the different research institutions and working places of the PhD students. At each seminar the PhD students hosting the seminar present their projects and get feed back. Members of the Scientific Advisory Board have also joined the seminars, and specific parts of the seminars are open to supervisors.

Spring 2003:

In spring the seminar was held at Årslev Research Center, DIAS, on 24-25 April. At this seminar the group discussions were focused on research methodologies, as a follow up to the summer school in 2002 on *Research Methodologies in Relation to Principles and Practice in Organic Farming*. Presentations on research in organic farming at the research station included 3 senior researchers from DIAS as well as a PhD student from SOAR. Associate professor Hans Henrik Knoop from the Danish University of Education gave a presentation on learning and stress. In addition there was a presentation and discussion on possibilities for obtaining post doc funding.



Figure 1: From the research at Aarslev. Photo: PhD student Dorte Bodin Dresbøll

Autumn 2003:

The autumn seminar was held on 13-14 November at Flakkebjerg Research Center, DIAS. This seminar was held jointly with a course on supervision for the supervisors as well as the PhD students (see below). The two PhD students working at Flakkebjerg presented their projects, and in addition one other researcher at Flakkebjerg engaged

in research in organic agriculture presented his research. The PhD students engaged in a discussion on research methodology in organic farming. The discussion focused on the acceptability (or otherwise) of the use of pesticides in organic agricultural research, but was equally relevant to research in organic livestock production, e.g. using animals raised under conventional conditions. The PhD students also elected a new representative to the Scientific Advisory Board, and had a discussion on the research school, its advantages and disadvantages, and made suggestions for development and themes for the summer schools.

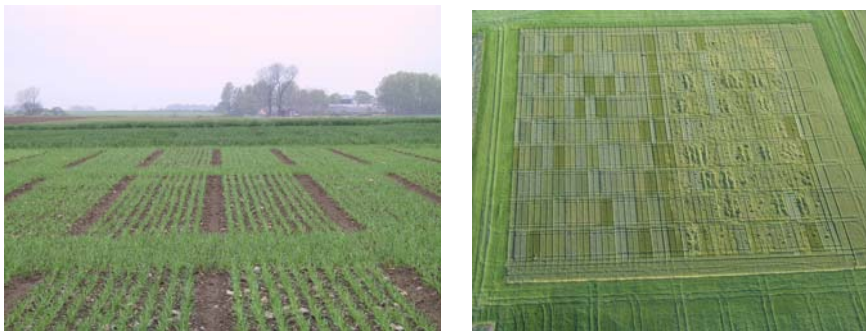


Figure 2: From the research at Flakkebjerg. Photo: PhD student Preben Klarskov Hansen

The next biannual seminar is scheduled to 29-30 April 2004.

Supervision course

At the biannual seminar in the spring 2002 the PhD students identified issues and problems in relation to supervision. These issues were the starting point for the planning of the supervision course. The course was run by professor Anette Kolmos and associate professor Lise Kofoed from Aalborg University. Planning was done in collaboration between the two, SOAR secretariat, and two PhD students. The program is shown in table 2. The supervisor course was offered to all supervisors of SOAR PhD students, and 24 supervisors participated. In the morning the supervisors started out with exchange of experiences and lectures by Anette Kolmos and Lise Kofoed. After lunch the PhD students arrived, and this allowed for supervisors and PhD students to discuss supervision in a new context. Groups were made of supervisors and students avoiding grouping PhD students with their own supervisors, and thus allowing a more free discussion. At the end of the program groups were formed by students and their own supervisors to make action plans for future supervision. This approach was received very positively by supervisors as well as PhD students, as

it added a new dimension to the course by giving room for a dialogue between supervisors and students.

Table 2: Program for Supervision course in SOAR

	Supervisors	
10:00-11:00	Introduction and presentations Tasks and Roles in the PhD process	PhD students arrive at 13:00
11:00-12:00	What is supervision - exchange of experiences	
12:00-13:00	Lunch	
13:00-15:00	Tools in the supervision process (learning journal, logs, contracts etc). Tools for conflict awareness, communication and feedback	Meeting in their own groups, discussing supervision, supervisors, and perhaps problems
15:00-15:30	Break for coffee	
15:30-16:00	Learning styles and communication	
16:00-17:00	Mixed groups of PhD students and supervisors. Dialogue on expectations, challenges, experiences, and possible steps and initiatives for action plans.	
17:00-17:30	Summary and introduction to individual action plans	
17:30-18:00	Individual action plans (PhD students together with their own supervisor)	
18:00	End of course	

Summer school

It is our intension that summer schools in SOAR should aim at broad themes, since the PhD students enrolled in SOAR cover a wide range of projects and research approaches. Thus previous themes covered research methodologies and philosophy of science. The programs and course descriptions of previous and future summer schools are available at the web-site www.soar.dk.

The summer school 2003 was titled "Values, Ideology, Science and Organic Farming". The innovative element of this course was that it was combined with an international conference: the Bertebo Conference in Falkenberg, Sweden, on Ecosystems Services. The PhD students participated in parts of the conference, and they interviewed some conference speakers about their values, attitudes and ideology. 18 PhD students participated in the Summer School, 10 from SOAR, 6 from Balticum, one from Norway and one from Sweden. Nova funded the course, and NorFA funded the travel for the Baltic students. The course was very intensive due to the combination with the conference. The course teachers functioned as facilitators using a participatory learning style in an interdisciplinary learning environment. To supplement the participatory approach guest professors gave lectures on the concepts of values, world views and ideologies. Evaluation of the summer school is available on the web-site www.soar.dk.



Figure 1: Photos from the Summer School 2003, by Thomas Larsen, PhD student

Secretariat

A good and well-managed secretariat has been running for 2 years. An academic assistant has been employed on a 20 hours per week basis to support the Head of the School in the daily management, and assist the PhD students with information on PhD courses, conferences, workshops, participate in planning and conduction of biannual seminars and summer schools – in collaboration with PhD students, Head of the School and supervisors. Administration of the jointly financed grants for PhD projects has been a bigger task than foreseen. It has therefore been decided to expand the position to 25 hours per week. The Head of the School has received partial compensation for his work with the Research School.

In December 2003 KVL has appointed a new head of school on request from Professor Stig Milan Thamsborg. From January 1st 2004 associate professor Henning Høgh Jensen, Department of Agricultural Sciences, will take over the leadership of the research school. Stig Milan Thamsborg was then appointed KVL representative of the board, thus ensuring important transfer of knowledge and continuity in the work.

Daily communication between the secretariat, the Scientific Advisory Board, the PhD students and the key supervisors is to a wide extent done through the homepage www.soar.dk. The homepage is also

intended to be the face to the outside World as a first contact to potential candidates and others interested in SOAR's activities.

International cooperation

In 2003 SOAR received funding for two international PhD students from the Danish Research Training Council. A precondition for receiving these grants is established cooperation with the international research environment.

There is close cooperation with the other Nordic countries regarding PhD education within the NOVA University (www.nova-university.org). Through NOVA collaboration has been extended to the BOVA University: The Baltic Forestry, Veterinary and Agricultural University (www.bova-university.org), and in 2003 6 PhD students from the Baltics participated in our Summer School. The three summer schools have been planned and accomplished in close collaboration with the Nordic countries through NOVA. All activities are coordinated closely with the Swedish Research School for Organic Agriculture and Food Systems (SwOFF). SOAR summer schools are receiving funding from NOVA.

SOAR participated in an EU application together with 3 other KVL Research Schools (RAPH; RAN and SAB) to become a Marie Curie Training Site. The application was not favoured, but will be resubmitted in 2004.

Research in organic agriculture and food systems in Denmark is moving towards extensive international integration in the coming years. To meet this challenge the secretariat will develop a strategy in collaboration with the Scientific Advisory Board. The strategy will focus on the future of summer schools, the network of key supervisors, integration into international networks etc. in this adaptation process.

Guest professors

In May 2003 Professor Lynn Abbott from University of Western Australia visited SOAR, and she presented her research in organic agriculture in Australia.

Activities planned for 2004

PhD Stipends

Two more PhD students will enroll in SOAR in 2004. One received a grant from the Danish Research Agency; the other is funded through the SOAR joint grants. It is also the plan to apply for funding for new joint grants for SOAR.

Biannual seminars

Spring seminar is planned for 29-30 April at DIAS Foulum. The theme will be presentation techniques and oral communication. Autumn seminar will be planned for November.

Supervisor course

As a follow up to the supervision course in 2003 it is the plan to bring supervisors together for a discussion on the academic level of dissertations and assurance of quality in the PhD education.

Summer school

The title of the summer school is "Is Organic Farming the key to Sustainability?" A planning group covering the different disciplines from 'stable to table' within the research school has been formed, and the first planning meeting is scheduled at 14th April. Responsible for the summer school will be associate professor Vibeke Langer, KVL, and a planning group is established together with collaborating universities and research institutes.

International cooperation

The vision is to strengthen international cooperation both in terms of student exchange and courses in organic agriculture and food systems. As DARCOF has launched the new strategy for 2005-2010 entitled International research cooperation and organic integrity (Internationalt forskningssamarbejde og økologisk integritet) SOAR will join forces with DARCOF to implement this strategy. It is planned that SOAR will participate in the DARCOF knowledge synthesis on Organic Agriculture in a Global Perspective.

International research cooperation will also be encouraged through ISOFAR, the International Society of Organic Agricultural Research, which was founded in 2003.

SOAR will continue inviting guest researchers and speakers to Denmark in order to give the PhD-students a possibility to establish international contacts.

Cooperation within NOVA will continue through the Nordic School of Agroecology/Ecological Agriculture, Agroasis (www.agroasis.org). Both SOAR and the Swedish research school SwOFF (<http://www.cul.slu.se/english/education/swoff/index.html>) are represented in Agroasis, and close collaboration with SwOFF will continue, with coordination and mutual support of PhD courses in the two research schools. A list of planned courses in the NOVA co-operation and SwOFF is available at the homepage www.soar.dk.

PhD Courses

An ad hoc SOAR course in social science will be conducted in January 2004, entitled 'Modernization of Organic Food Networks'.

SOAR contributes to a graduate course in SwOFF on 'Agroecology with emphasis on horticultural cropping systems', to be conducted in September – November 2004.

Organizational structure of SOAR

Organization

Head of School is Professor Stig Milan Thamsborg. Management and decision making is conducted in close collaboration with a Scientific Advisory Board and the leadership of DARCOF. The Scientific Advisory Board is constituted of the Head of the School, representatives from the institutions associated with DARCOF, KVL and a PhD student. Since November 2001 the Scientific Advisory Board has conducted 6 meetings. Next meeting is scheduled to April 10th 2003. A secretariat (head of school and a part time academic assistant) takes care of daily management.

From August 1st research professor Erik Steen Jensen's five years' assignment at KVL ended and he moved back to Risø National Laboratory. As a consequence he left the Scientific Advisory Board. A new representative from KVL was not appointed till end of the year.

In November 2003 a new PhD representative was appointed to the Scientific Advisory Board, as the two years' term ended. New PhD student in the board is Paul Rye Kledal, Danish Research Institute of Food Economics (FØI).

In December 2003 KVL has appointed a new head of school on request from Stig Milan Thamsborg. From January 1st 2004 associate professor Henning Høgh Jensen, Department of Agricultural Sciences, will take over the leadership of the research school. Stig Milan Thamsborg was then appointed KVL representative of the board.

Secretariat (2003)

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The PhD Projects

At the launch of SOAR in 2001 12 PhD students were enrolled. By the end of 2003 the number of PhD students enrolled in SOAR is 26.

List of PhD students enrolled in SOAR

PhD-student	Ahmed El-Naggar
Title of project	Natural amino acids hydrolysates from plants soakings as a nitrogen source in Organic Agriculture
Supervisors	Associate professor Henning Høgh Jensen Assistant professor Andreas Flach de Neergaard, KVL; Professor Ahmed El-Araby, Ain-Shams Univ, Egypt
University	The Royal Veterinary and Agricultural University
Working place	The Royal Veterinary and Agricultural University
E-mail / phone	aen@kvl.dk , 3528 3517
Aim	<p>The major research objective of this study is to investigate amino acid content and composition in soakings of different plant materials. Fertilizer and plant growth effects of such soakings will be investigated as well as their ability to chelate micronutrients in the soil.</p> <p>The following specific research questions will be addressed:</p> <ol style="list-style-type: none">1. Effect of time and temperature for soaking plant material for release of nitrogen.2. Determine the nature and importance of different nitrogen containing compounds in solutions from different model plant materials.3. Evaluate the effects of foliar fertilisation products at various rates and timing of application on the growth, development and the yield of crop plants.4. Explore the possibilities of using amino acids from plant-soaked solutions as chelates for metal ions with special focus on micronutrients.5. Economically evaluate the potential of using amino acids as a nitrogen source and chelating agents.

PhD-student	Anders Pedersen
Title of project	Optimisation of nitrogen use efficiency in organic vegetable production
Supervisors	Associate professor Lars Stoumann Jensen, KVL Senior scientist Kristian Thorup Kristensen, DIAS
University	The Royal Veterinary and Agricultural University
Working place	The Royal Veterinary and Agricultural University
E-mail / phone	anders@kvl.dk / 3528 3494
Aim	The aim of the Ph.D.-project is to improve the modelling of root growth. The focus is to investigate organic vegetable crop rotations, and open up for a better understanding in nitrogen use and to avoid leaching of nitrate into the environment. The main thing to study will be, root penetration rate and root proliferation in different soil layer, and modeling the ability of different root systems to take up nitrogen from different places in the soil profile.
PhD-student	Annette Nygaard Jensen
Title of project	Bacterial infection risk associated with outdoor organic pig production with special reference to <i>Salmonella</i> and <i>Campylobacter</i> infection
Supervisors	Associate professor Anders Dalsgaard (KVL) Senior scientist Dorte Lau Baggesen, (DFVF) Senior scientist Eva Møller Nielsen, (SSI)
University	The Royal Veterinary and Agricultural University
Working place	Danish Veterinary Institute,
E-mail / phone	anj@vetinst.dk / 3530 0328
Aim	The objective of this project is to improve the knowledge on the risk of outdoor pig production in relation to spread and persistence of <i>Campylobacter</i> and <i>Salmonella</i> infections. For <i>Salmonella</i> the specific objectives are to evaluate the survival of <i>Salmonella Typhimurium</i> in soil and grass of contaminated pastures used for outdoor pig production, measurement of the infectivity of naturally <i>S. Typhimurium</i> contaminated pastures in relation to time, and in the case of high infectivity, evaluation of the pathogen reducing effect of soil treatment. For thermophilic <i>Campylobacter</i> , the objectives are to describe the infection dynamics of natural <i>Campylobacter</i> infections over time in outdoor pigs, including time of colonisation, level of excretion in faeces, species distribution in the group and in the individuals, interaction with the environment, and to describe the possible changes in prevalence and species distribution in relation to time and environmental contamination.

PhD-student	Bea Nielsen
Title of project	Organic beef production based on dairy breed bull calves
Supervisors	Professor Stig Milan Thamsborg (KVL) Head of Research Unit John Hermansen (DIAS)
University	The Royal Veterinary and Agricultural University
Working place	The Royal Veterinary and Agricultural University, Department of Animal Science and Animal Health
E-mail / phone	bean@kvl.dk / 3528 3082
Aim	The aim of the project was to describe and develop production systems of organic beef based on bull calves from organic dairy farms. The project includes analysis of constraining factors and possibilities by means of questionnaires (1), feeding experiments on ryegrass /white clover pastures concerning performance in calves following turn-out (2) and herbage intake in steers (3+4) and modeling of production strategies in organic steer production based on recordings on organic farms (5+6).
Graduated	03.06.2003

PhD-student	Bjørn Molt Petersen
Title of project	Modeling of processes at the farm level, with special emphasis on nitrogen and carbon flow and turnover.
Supervisors	Senior scientist Jørgen E. Olesen (DIAS) Professor John R. Porter (KVL)
University	The Royal Veterinary and Agricultural University
Working place	Danish Institute of Agricultural Sciences, Foulum
E-mail / phone	BjornM.Petersen@agrsci.dk / 8999 1668
Aim	The aim of the Ph.D.-project is to improve the modelling of the turnover of organic matter in soil. The project will give special focus to: <ol style="list-style-type: none"> 1) Good representations of the effects of climate, management and texture 2) Contributions to the modeling of the turnover of nitrogen in grazed pastures 3) Contributions to establishing a modeling framework (FASSET), in order to make improved assessments of the leaching from conventional and organic farms.

PhD-student	Chris Kjeldsen
Title of project	Organic food networks and sustainable development
Supervisors	Associate professor Jan Holm Ingemann, Aalborg University Associate professor Erik Christensen, Aalborg University
University	Aalborg University
Working place	Institute for Economics, Politics and Public Planning, Aalborg University
E-mail	ckj@socsci.auc.dk / 9635 7148
Aim	Initial research questions The research task in this project takes its departure in the need for developing sustainable organic food networks. Of particular interest in that regard is the growth in alternative organic food networks and their potential for providing sustainable solutions to the problems of the conventional food networks. The initial research question in the project is therefore, whether the Danish alternative organic food networks develop towards a convergence to conventional structures or whether they form a sustainable alternative to conventional food networks?

PhD-student	Christina Elslund Adamsen
Title of project	Organic meat processing – an alternative to nitrite curing of meat
Supervisors	Professor, Leif H. Skibsted, KVL
University	The Royal Veterinary and Agricultural University
Working place	The Royal Veterinary and Agricultural University
E-mail / phone	cep@kvl.dk / 3528 3290
Aim	The aim of the project is to find an alternative to nitrite curing of meat and the inspiration will be taken from the colour of Parma ham. Objectives of this project: <ol style="list-style-type: none"> 1. Pigments formed in Parma ham (structure to be established) 2. Pigment formed in model systems based only on organic meat products 3. Measure the stability of the pigment based only on organic meat products and compare this with other organic meat colours

PhD-student	Christine Fossing
Title of project	Application of alternative medicine in organic dairy herds with special emphasis on the effect of veterinary homeopathy on udder health
Supervisors	Senior scientist Mette Vaarst (DIAS) Professor Stig Milan Thamsborg (KVL)
University	The Royal Veterinary and Agricultural University
Working place	Danish Institute of Agricultural Sciences, Dept. of Animal Health and Welfare
E-mail / phone	Christine.Fossing@agrsci.dk / 89 99 13 33
Aim	The aim of the project is to assess how the use of alternative treatment types in organic dairy cattle herds affects the udder health on individual and herd level. The relationship between the individual cattle farmer's choice of therapy and the relationship between therapy and management strategy will be examined. The individual cattle farmer's need for decision support when using alternative treatment will be analyzed.

PhD-student	Dorte Bodin Dresbøll
Title of project	Optimization of growing media for organic greenhouse production.
Supervisors	Senior scientist Kristian Thorup-Kristensen (DIAS) Associate professor Jakob Magid (KVL)
University	The Royal Veterinary and Agricultural University
Working place	Danish Institute of Agricultural Sciences, Department of Horticulture
E-mail / phone	dorte.becknielsen@agrsci.dk / 6390 4136
Aim	The objectives are: <ol style="list-style-type: none"> 1) To extend the knowledge of changes in plant material structure during com-posting. 2) To examine the nutrient transformation – mineralization, immobilization, leaching and gaseous emissions in different types of compost. 3) To produce stable compost which in combination with amendments of plant residues can be a suitable growing media and fertilizer for organic greenhouse production.

PhD-student	Dorthe Elle Ilsøe
Title of project	Consumer demands on organic food products
Supervisors	Associate professor Birgit Land (RUC) Associate professor Erling Jelsøe (RUC)
University	Roskilde University Center
Working place	Department of Environment, Technology and Social Studies, Roskilde University,
E-mail / phone	dilsoee@teksam.ruc.dk / 4674 2048
Aim	The starting point of the project is the development of the organic food sector and the actual stagnation in the market. The project aims at illustrating the consumer demands and discuss the future development of the sector. The project is carried out in cooperation with the Technical University of Denmark and the Danish Consumer Council, and will investigate the consumers' reflections, demands and wishes regarding organic production of food.

PhD-student	Gregor Levin
Title of project	Landscape changes under ecological farming
Supervisors	Professor Jesper Brandt (RUC) Senior scientist Pia Frederiksen (DMU)
University	Roskilde University Center
Working place	National Environmental Research Institute (DMU), Department of Policy Analysis,
E-mail	gl@dmu.dk / 4630 1822
Aim	The aim of the project is to investigate if organic farming strategies have a positive effect on landscapes' nature content, compared to conventional farming methods. Furthermore, underlying driving forces and processes for changes in nature content at landscape scale shall be examined. For a number of "typical" Danish landscapes, changes in nature content will be registered on basis of aerial photos. Secondary data as well as information derived from interviews with both organic and conventional framers will be used to detect key factors and driving forces.

PhD-student	Helena Mejer
Title of project	Management Practice and bioactive pplans as a means of reducing parasite infections in organic swine production systems.
Supervisors	Associate professor Allan Roepstorff (KVL) Professor Lis Eriksen (KVL)
University	The Royal Veterinary and Agricultural University
Working place	The Danish Centre for Experimental Parasitology, The Royal Veterinary and Agricultural University,
E-mail / phone	hem@kvl.dk / 3528 2789
Aim	The aim of the project is to obtain information that will supplement our present knowledge on parasite infections in outdoor pigs and enable us to initiate work on guidelines on parasite control. The first part of the project will describe the transmission pattern and epidemiology of the more common intestinal parasites in pigs born on infected pastures. Thereafter, the long term survival of free-living parasite eggs and larvae will be examined in combination with the effect of ploughing on availability eggs/larvae. Lastly, alternative forages are tested for antiparasitic effects.
PhD-student	Jeanette Hyldal Vollmer
Title of project	Modeling development of disease complexes on barley cultivar mixtures under organic farming practice
Supervisors	Senior scientist Hanne Østergård (Risø National Laboratory) Senior scientist Hans Pinnschmidt (DIAS) Associate professor Lisa Munk (KVL)
University	The Royal Veterinary and Agricultural University
Working place	Plant Research Department, Risø National Laboratory
E-mail / phone	jeanette.vollmer@risoe.dk / 4677 4135
Aim	The aim of the project is to study the population dynamics of two fungal pathogens, <i>Rhynchosporium secalis</i> and <i>Pyrenophora teres</i> , in variety mixtures of spring barley. The two fungal diseases are common in barley and their diseases (scald and leaf spot respectively) can have important implications on yield. The focus is on the disease complex, i.e. the simultaneous occurrence of the two species, rather than the species separately, aiming to describe their epidemiologies, as decided by mixture resistance, and to establish whether the relation between the two species is antagonistic, neutral or synergistic.

PhD-student	Kamma Westergaard
Title of project	Landscape and agricultural practice of Danish farms - does organic farming make a difference?
Supervisors	Associate professor Henrik Vejre (KVL) Research professor Erik Steen Jensen (KVL) Associate professor Vibeke Langer (KVL)
University	The Royal Veterinary and Agricultural University
Working place	The Royal Veterinary and Agricultural University, Dept. Economics and Natural Resource Management
E-mail / phone	kaw@kvl.dk, 3528 2635
Aim	The aims are: 1. To investigate the landscape of Danish farms and evaluate the differences according to geomorphic region and farm type (organic versus conventional and dairy versus crop producers). 2. To describe the field management practice of these farm types, and based on ecological theory discuss whether the organic farms live up to their principal guidelines.
PhD-student	Kirstine Flintholm Jørgensen
Title of project	The importance of nutritional factors and the physiological background for the development of liver abscesses in veal calves and young bulls - perspectives for organic beef production
Supervisors	Senior scientist Mogens Vestergaard, DIAS Associate professor Peder Nørgaard, KVL
University	The Royal Veterinary and Agricultural University
Working place	Danish Institute of Agricultural Sciences, Animal Nutrition and Physiology
E-mail / phone	Kirstine.Jorgensen@agrsci.dk, 8999 1395
Aim	The aim of the project is to investigate physiological changes in rumen of veal calves and young bulls under different feeding regimes, to see how the different feeds influence the rumen epithelia, nutrient transport mechanisms, and the liver function. The objectives of these investigations are to establish some of the mechanisms of importance for penetration of pathogenic bacteria through the epithelia with an increased risk of liver abscesses.

PhD-student	Klaus Horsted
Title of project	Strategies for increased foraging in organic layers
Supervisors	Associate professor Hans Ranvig (KVL) Head of Research Unit John E. Hermansen (DIAS) Senior Scientist Sanna Steinfeldt (DIAS)
University	The Royal Veterinary and Agricultural University
Working place	Danish Institute of Agricultural Sciences, Department of Agroecology
E-mail / phone	Klaus.Horsted@agrsci.dk / 8999 1286
Aim	The major aim of this project is to provide better knowledge about the potential for natural foraging of laying hens in relation to the development of new systems in organic poultry production. Specific objectives: <ul style="list-style-type: none"> ▪ to estimate how much of the daily need for food for the laying hens that can be covered by natural foraging in the available outdoor area by growing different crops in the hen yard and without compromising the production ▪ to estimate the effect of growing different crops in the hen yard on how the poultry uses the outdoor area, the health and welfare of the poultry and the recirkulation of nutrients in the system.

PhD-student	Lene Hegelund
Title of project	Control systems in organic egg production, focusing on animal welfare and food security
Supervisors	Associate professor Hans Ranvig (KVL) Head of research unit Jan Tind Sørensen, (DIAS)
University	The Royal Veterinary and Agricultural University
Working place	Danish Institute of Agricultural Sciences, Animal Health and Welfare,
E-mail / phone	Lene.Hegelund@agrsci.dk / 8999 1523
Aim	The aim of the project is to develop a management tool for organic egg producers using the HACCP-concept, thereby securing animal health and welfare at the farms and accounting for food security.

PhD-student	Maj-Britt Quitzau
Title of project	Cultural barriers and potentials for recycling of human town-waste
Supervisors	Senior lecturer Inge Røpke (DTU) Senior scientist Pernille Kaltoft (NERI / DMU)
University	Technical University of Denmark
Working place	National Environmental Research Institute (NERI / DMU), Department of Policy Analysis, Environmental Sociology Group
E-mail / phone	mbq@dmu.dk / 4630 1365
Aim	The general purpose of this project is to understand the cultural barriers and potentials for getting a substantial increase in recycling of human town-waste from town to farming land in relation to both ecological farmers who shall utilize the town-waste and the citizens who shall have a changed way of handling black wastewater and take the agricultural products. The project will analyze which perceptions and attitudes to recycling of human town-waste the cultural marking have led to and which basic cultural understandings the recycling of human town-waste touches upon.
PhD-student	Martin Nørregaard Hansen
Title of project	Technology for reduction of environmental impact and loss of nitrogen from solid manure
Supervisors	Senior lecturer Kaj Henriksen, University of Aalborg Senior scientist Sven G. Sommer (DIAS)
University	Aalborg University
Working place	Danish Institute of Agricultural Sciences, Research Center Bygholm, Department of Agricultural Engineering
E-mail / phone	MartinN.Hansen@agrsci.dk / 7629 6036
Aim	Investigation and development of technology to reduce loss of nutrients and environmental impact of straw bedded housing systems.

PhD-student	Mette Klindt Andersen
Title of project	Competition and complementarity between intercropped barley, rape and fieldpea in ecological cropping systems – the role of plant available nitrogen and sulphur as well as cropping design.
Supervisors	Research professor Erik Steen Jensen (KVL) Professor Jacob Weiner (KVL)
University	The Royal Veterinary and Agricultural University
Working place	The Royal Veterinary and Agricultural University, Department of Agricultural Sciences, Organic Farming Unit,
E-mail	mka@kvl.dk / 3528 3492
Aim	<p>The project is aimed at increasing our understanding of the link between the degree of diversity of an intercrop, its resource use and productivity. The project will give special focus to:</p> <ol style="list-style-type: none"> 1) understanding how the degree of crop diversity in an intercrop affects resource utilization, especially the assimilation of sulfur and nitrogen, as well as productivity. 2) gaining an understanding how the availability of sulphur and potential sulphur-nitrogen interactions affects the interrelations and nutrient uptake of intercropped crops. and thereby shedding light on how competitive and complementarity dynamics of intercrops are affected by sowing density, sowing pattern and the relative quantitative relations between component crops.

PhD-student	Mette Thyme
Title of project	Production of N ₂ O in grass-clover pastures
Supervisors	Senior scientist Per Ambus (Risø) Associate professor Henning Høgh-Jensen (KVL)
University	The Royal Veterinary and Agricultural University
Working place	Plant Research Department, Risø National Laboratory
E-mail / phone	mette.thyme@risoe.dk / 4677 4151
Aim	<p>The aim of the Ph.D.-project is to increase the knowledge of the biological and physical-chemical mechanisms, which control the production of N₂O in grazed grass-clover pastures. Such knowledge is a necessity for a complete environmental evaluation of organic farming practices.</p> <p>The project will give special focus to:</p> <ol style="list-style-type: none"> 1) develop a method to measure N₂ fixation and N₂O production in pot experiment 2) establish the fraction of recently fixed N, which is released to the soil and later taken up by grass as well as the fraction which is emitted as N₂O (the emission factor) 3) identify the microbial processes responsible for the production of N₂O and investigate how these are influenced by urine deposition study the connection between N₂O production and C mineralization in the rhizosphere

PhD-student	Mette Weinreich Hansen
Title of project	Empowerment of organic enterprises - values, identity and learning in food processing
Supervisors	Associate professor Niels Heine Kristensen, DTU
University	Technical University of Denmark
Working place	Technical University of Denmark, Department of Manufacturing Engineering and Management, Innovation and Sustainability, Bygning 303, 2800 Kgs. Lyngby
E-mail / phone	mwh@ipl.dtu.dk / 4525 6018
Aim	The aim of the project is to bring the discussion on values, which has so far mainly existed in the primary production, into the organic food processing enterprises. The discussion on processing principles, values and identity will take place in a dialogue with the processing enterprises.

PhD-student	Nicoline Maag Eigaard
Title of project	Investigation on mortality and interactions of selected diseases in free-range chickens
Supervisors	Associate professor Anders Permin (KVL) Associate research professor Jens Peter Christensen (KVL)
University	The Royal Veterinary and Agricultural University
Working place	The Royal Veterinary and Agricultural University, Dept. Veterinary Microbiology
E-mail / phone	nme@kvl.dk / 3528 2704
Aim	The aims of the present project are: (i) to improve welfare of poultry under free-range conditions by investigating the occurrence of diseases, their interaction and significance in free-range table egg production systems and to elucidate the possible relationship between disease prevalence and production systems and on this basis develop strategies to improve the disease prophylaxis in free-range poultry production systems; (ii) to develop a PCR-based method for identification of <i>Capillaria spp.</i> ; (iii) to investigate the host response using interaction studies between parasitic and bacterial infections which are of crucial importance for improving the health of free-range poultry.

PhD-student	Paul Rye Kledal
Title of project	Future supply and marketing strategies in the Danish organic food sector
Supervisors	Professor Kostas Karantinis (KVL) Senior scientist Mogens Lund (Danish Research Institute of Food Economics)
University	The Royal Veterinary and Agricultural University
Working place	Danish Research Institute of Food Economics (FØI), Farm Management and Production Systems Division
E-mail / phone	paul@foi.dk / 3528 6875
Aim	<p>The objective of this research project is to analyse the future development of the Danish organic food sector, with two commodities as case studies:</p> <ul style="list-style-type: none"> - organic pork - organic vegetables <p>Emphasis will be placed on identifying the economic forces and changes within the chains in combination with the macro-social foundations which sets the regulatory framework for the economic behaviour among individuals, firms and consumers along the network of the chosen chains. By linking the research results of the economic and production dynamics within the organic food chains together with the various social movements that are at stake in the consumption of organic food, the aim is to identify and explain the diversification of the organic chain and provide with useful supply strategies for further growth in a ten year perspective.</p>

PhD-student	Preben Klarskov Hansen
Title of project	Crop-Weed interactions determined by sensor techniques
Supervisors	Associate Professor Christian Andreasen, KVL Head of Research Unit Niels Holst, DIAS Senior Scientist Henning Tangen Sogaard, DIAS
University	The Royal Veterinary and Agricultural University
Working place	Danish Institute of Agricultural Sciences, Department of Crop Protection
E-mail / phone	PrebenK.Hansen@agrsci.dk / 5811 3397
Aim	<p>The central aim of the PhD project, COMSENS, is to provide new knowledge about competition between crop and weeds, aiming at predicting the outcome of the competition (the reduction of the crop yield) with a certainty, which equals the prediction from the relative leaf area model (Knopff & Spitters 1991; Lotz et al. 1996).</p> <p>COMSENS is planned to cover the following issues:</p> <ul style="list-style-type: none"> • to examine if the competition between spring barley and weeds can be described with the relative leaf model • to estimate the relation between Leaf Area Index (LAI) and soil coverage • to model growth in soil ncoverage of 3-6 spring barley varieties and 8-12 weed species under semi field conditions • to examine interactions between varietal differences in competitiveness and tolerance to mechanical weed control • to examine and test if sensor based methods (reflectance measurement and digital image analysis) can improve the estimation of competition between spring barley and weeds, if the methods are used in these growth stages, where weed control usually takes place

PhD-student	Thomas Larsen
Title of project	Soil ecological studies of decomposition of urban fertilisers
Supervisors	Associate professor Jakob Magid, KVL Senior scientist Paul Henning Krogh, NERI (DMU)
University	The Royal Veterinary and Agricultural University
Working place	National Environmental Research Institute (NERI/DMU), Department of Terrestrial Ecology
E-mail / phone	thl@dmu.dk,
Aim	<p>This study will investigate the impact of fertilizers made of kitchen organic waste (urban fertilizers) on agricultural soil with the following objectives:</p> <ul style="list-style-type: none"> • To quantify the temporal course in the decomposition of the fertilizers in agricultural soils using C & N fluxes and mass loss. • To determine the quantitative contribution from the trophic levels in the food-chain using <ul style="list-style-type: none"> ◦ Simple methods (mass loss, microbial biomass and faunal abundance) ◦ Isotope techniques and molecular markers. • To investigate the temporal course in the contribution of the trophic levels with an emphasis on the role of microarthropods.

PhD-student	Tina Lund-Nielsen
Title of project	Production of high quality organic milk considering the future demands for use of organically produced feed and natural vitamins
Supervisors	Professor, Leif H. Skibsted (KVL) Senior scientist, Jacob Holm Nielsen, DIAS
University	The Royal Veterinary and Agricultural University
Working place	Danish Institute of Agricultural Sciences, Department of Food Science
E-mail / phone	Tina.lund-nielsen@agrsci.dk / 8999 1248
Aim	<p>The aim of the project is to elucidate the consequences of the new regulation for organic feeding and what effect the addition of natural vitamins and antioxidants to the feed has on the oxidative stability of milk. How the supply of selenium from the cow and the production of endogenous antioxidants (uric acid) can be increased, will also be examined.</p> <p>Research outline: Variation in the content of pro- and antioxidants in organic milk from herds in relation to regional differences, feeding and season will be examined first. Next, the effectiveness of natural isomer of vitamin E as an antioxidant in relation to the synthetic isomer of vitamin E will be studied. Finally, cheese based on milk with high content of uric acid will be examined for an enhanced anti-oxidative capacity by exposure to light. Furthermore, a guide to how feeding can enhance the oxidative stability of organic milk will be produced.</p>

The Key Supervisors

The key supervisors in SOAR have been organized in two lists:

List A. - key supervisors with PhD students in SOAR

List B. - key supervisors with experience from research in organic farming and food production but without SOAR students.

Key Supervisors in list B automatically enters list A when they take on the supervision responsibility. During 2003 two new key supervisor has entered list A: Associate professor Hans Ranvig, Department of Production Animals and Horses, KVL, and associate professor Kostas Karantininis, Danish Research Institute of Food Economics, KVL.

List A. - key supervisors with PhD students in SOAR

Theme 1: Organic crop production, nature quality and resource management (Økologisk plantedyrkning, naturkvalitet og ressourcestyring)

Name	Address	PhD students in SOAR
Per Ambus Senior scientist	Plant Biology and Biogeochemistry Risø National Laboratory E-mail: per.ambus@risoe.dk ph: 4677 4152	Mette Thyme
Henning Høgh Jensen Associate professor	Department of Agricultural Sciences, KVL E-mail: hhj@kvl.dk ph: 3528 3391	Ahmed El-Naggar Mette Klindt Andersen Mette Thyme
Erik Steen Jensen Research Professor	Department of Agricultural Sciences, KVL E-mail: esj@kvl.dk ph: 3528 3517	Kamma Westergaard Mette Klindt Andersen
Lars Stoumann Jensen Associate professor	Department of Agricultural Sciences, KVL E-mail: lsj@kvl.dk ph: 3528 3470	Anders Pedersen
Jørgen E. Olesen Senior scientist	Department of Crop Physiology and Soil Science, DIAS E-mail: JorgenE.Olesen@agrsci.dk ph: 8999 1659	Bjørn Molt Petersen
John R. Porter Professor	Department of Agricultural Sciences, KVL E-mail: jrp@kvl.dk ph: 4637 3395	Bjørn Molt Petersen

Svend Gjedde Sommer Senior scientist	Department of Agricultural Engineering, DIAS E-mail: SvenG.Sommer@agrsci.dk ph: 7629 6063	Martin Nørregaard Hansen
Kristian Thorup-Kristensen Head of research unit	Department of Horticulture, DIAS E-mail: Kristian.ThorupKristensen@agrsci.dk ph: 6390 4128	Dorte Bodin Dresbøll Anders Pedersen
Henrik Vejre Associate professor	Department of Economics and Natural Resources, KVL E-mail: hv@kvl.dk ph. 3528 2211	Kamma Westergaard
Vibeke Langer Associate professor	Department of Agricultural Sciences, KVL E-mail: vl@kvl.dk ph: 3528 2383	Kamma Westergaard
Kaj Henriksen Associate professor	Department of Environmental Engineering, Aalborg University E-mail: i5kh@civil.auc.dk ph: 96 35 85 10	Martin Nørregaard Hansen
Jakob Magid Associate professor	Department of Agricultural Sciences, KVL E-mail: jma@kvl.dk ph. 3528 3491	Dorte Bodin Dresbøll Thomas Larsen
Hanne Østergaard Senior Research Specialist	Plant Research Department, Risø E-mail: hanne.oestergaard@risoe.dk ph: 4677 4111	Jeanette Hyldal Vollmer

Theme 2: Organic livestock production and health (Økologisk husdyrbrug)

Name	Address	PhD students in SOAR
Anders Dalsgaard Associate professor	Department of Veterinary Microbiology, KVL E-mail: ad@kvl.dk ph: 3528 2720	Annette Nygaard Jensen
John E. Hermansen Head of research unit	Department of Agricultural Systems, DIAS John.Hermansen@agrsci.dk ph: 8999 1236	Klaus Horsted

Hans Ranvig Associate professor	Department of Production Animals and Horses, KVL Grønnegårdsvej 2 1870 Frederiksberg C E-mail: har@kvl.dk ph: 3528 3090	Klaus Horsted Lene Hegelund
Allan Roepstroff Associate professor	Center for Experimental Parasitologi KVL aro@kvl.dk ph: 3528 2746	Helena Mejer
Jan Tind Sørensen Head of research unit	Department of Animal Health and Welfare, DIAS E-mail: JanTind.Sorensen@agrsci.dk ph: 8999 1343	Lene Hegelund
Stig Milan Thamsborg Professor	Department of Veterinary Microbiology, KVL E-mail: smt@kvl.dk ph: 3528 3778	Christine Fossing
Mette Vaarst Senior scientist	Department of Animal Health and Welfare, DIAS Mette.Vaarst@agrsci.dk ph: 8999 1344	Christine Fossing
Lis Eriksen Professor	Department of Clinical Studies, KVL E-mail: lis@kvl.dk ph: 3528 2839	Helena Mejer

Theme 3: Organic agriculture, food production and society (Jordbrug og samfund)

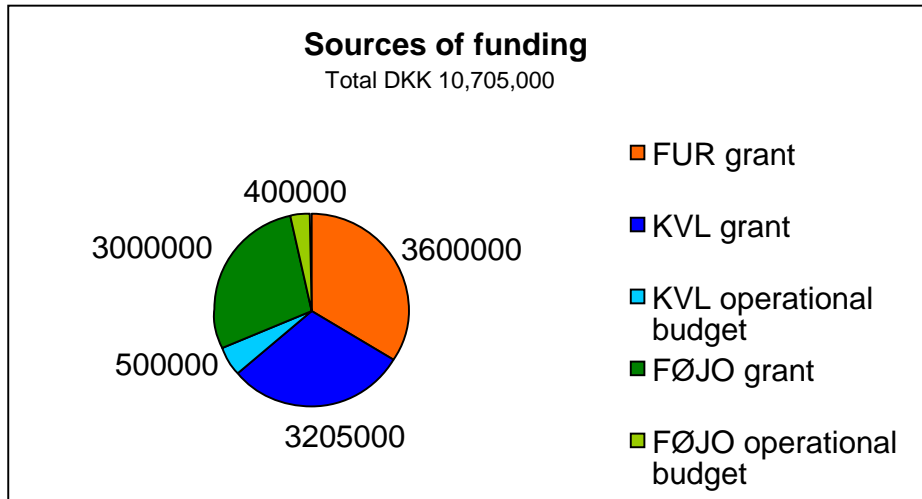
Name	Address	PhD students in SOAR
Jesper Brandt Professor	RUC Dept. of Geography and International Development Studies E-mail: brandt@ruc.dk ph: 4674 2463	Gregor Levin
Pia Frederiksen Senior scientist	DMU Postboks 358 Frederiksborgvej 399 4000 Roskilde E-mail: PFR@dmu.dk ph: 46301207	Gregor Levin

Jan Holm Ingemann Associate professor	AUC Agricultural Economics Fibrigerstæde 1 9220 Aalborg Øst E-mail: ingemann@socsci.auc.dk ph.: 9635 8185	Chris Kjeldsen
Erling Jelsø Associate professor	Department of Environment, Technology and Social Studies, RUC E-mail: ej@ruc.dk ph: 4674 2049	Dorthe Ilsøe
Pernille Kaltoft Senior scientist	Department of Policy Analysis, DMU E-mail: pka@dmu.dk ph.: 4630 1823	Maj-Britt Quitzau
Kostas Karantininis Associate professor	Danish Research Institute of Food Economics, KVL E-mail: kok@kvl.dk ph: 3528 2276	Paul Rye Kledal
Niels Heine Kristensen Associate professor	Department of Manufacturing Engineering and Management, DTU E-mail: nhk@ipl.dtu.dk ph: 4525 6021	Mette Weinreich Hansen
Birgit Land Associate professor	Department of Environment, Technology and Social Studies, RUC E-mail: bl@ruc.dk ph: 4674 2702	Dorthe Ilsøe
Leif Skibsted Professor	Department of Dairy and Food Science, KVL E-mail: ls@kvl.dk ph: 3528 3221	Christina Elslund Adamsen Tina Lund-Nielsen

Financial overview

Sources of funding

The total budget for SOAR stipends and operational costs is DKK 10,705,000 over a 5 years' period. The below figure shows the sources of funding for SOAR.



Accounting 2003

The accounting below shows the amounts that are debited to the SOAR account at KVL. Grants for stipends from KVL and FØJO are paid directly to user, and do not appear from this accounting.

2003 (amounts in DKK)	Budget	Expenditure	Transfer
<i>Transfer from 2002¹</i>	655.000		
FUR excl. OH ²	1.000.000		
Head of SOAR	75.000	91.386	-16.386
Academic assistant	200.000	173.801	26.199
Operational costs	50.000	41.580	8.420
2 biannual seminars	30.000	25.650	4.350
Summer school	150.000	92.297	57.703
Supervisor course	40.000	31.214	8.786
PhD stipends ³	0	0	1.110.000
PhD stipends paid directly ⁴		687.500	
Total 2003		1.143.428	1.199.072

¹ The amount has been corrected from 617.000 DKK to 655.000 DKK due to account error in 2002.

² Including overhead to KVL the amount is 1.200.000 DKK.

³ Stipends paid from SOAR account. Due to joint funding of PhD stipends the first SOAR contribution starts in June 2004

⁴ Stipends paid directly to PhD students

Budget for 2004

2004 (amounts in DKK)	Budget
<i>Transfer from 2003</i>	1.199.000
FUR excl. OH	1.000.000
FØJO excl. OH	267.000
NOVA ⁵	166.000
Income	2.632.000
Head of SOAR	75.000
Academic assistant	250.000
Operational costs	50.000
2 biannual seminars	40.000
Summer school	166.000
Supervisor course	50.000
Courses	100.000
PhD stipends ⁶	219.000
Total 2004	950.000

⁵ Expected contribution from NOVA

⁶ The SOAR contribution starts in June 2004

Original budget for SOAR

Item	Amount (DKK)
2001 (from 1.7)	
Head of SOAR	0
Academic assistant	10.000
Operational costs	0
1 seminar	15.000
Stipends*	0
Overhead**	5.000
Total	30.000
2002	
Head of SOAR	175.000
Academic assistant	100.000
Operational costs	50.000
Biannual seminars	20.000
Summer school	140.000
Supervisor course	40.000
Stipends* (min. 4 initiated)	1.171.556
Overhead**	187.111
Total	1.883.667
2003	
Head of SOAR	175.000
Academic assistant	100.000
Operational costs	50.000
Biannual seminars	30.000
Summer school***	150.000
Supervisor course , guest lecturers	40.000
Stipendier* (min. 4 initiated, 4 continued)	2.373.111
Overhead**	323.222
Total	3.241.333
2004	
Head of SOAR	175.000
Academic assistant	100.000
Operational costs	50.000
Biannual seminars	35.000
Summer school	160.000
Supervisor course , guest lecturers	50.000
Stipends* (min. 8 continued)	2.405.111
Overhead**	378.222
Total	3.353.333

2005	
Head of SOAR	175.000
Academic assistant	100.000
Operational costs	50.000
Biannual seminars	35.000
Summer school	160.000
Supervisor course , guest lecturers	50.000
Stipends* (min. 4 continued)	1.218.556
Overhead**	246.111
Total	2.034.667
2006 (up to 30.6)	
Head of SOAR	40.000
Academic assistant	50.000
Operational costs	25.000
1 seminar	20.000
Stipends*	0
Overhead**	27.000
Total	162.000
Grand total	10.705.000

* The stated amount constitute SOAR's contribution to the stipends

** OH constitute less than 20% of the full amounts, since no overhead is calculated from KVL's grant

***Contribution from NOVA (max. 120.000) not included in budget